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Combat Crew

strategic air command

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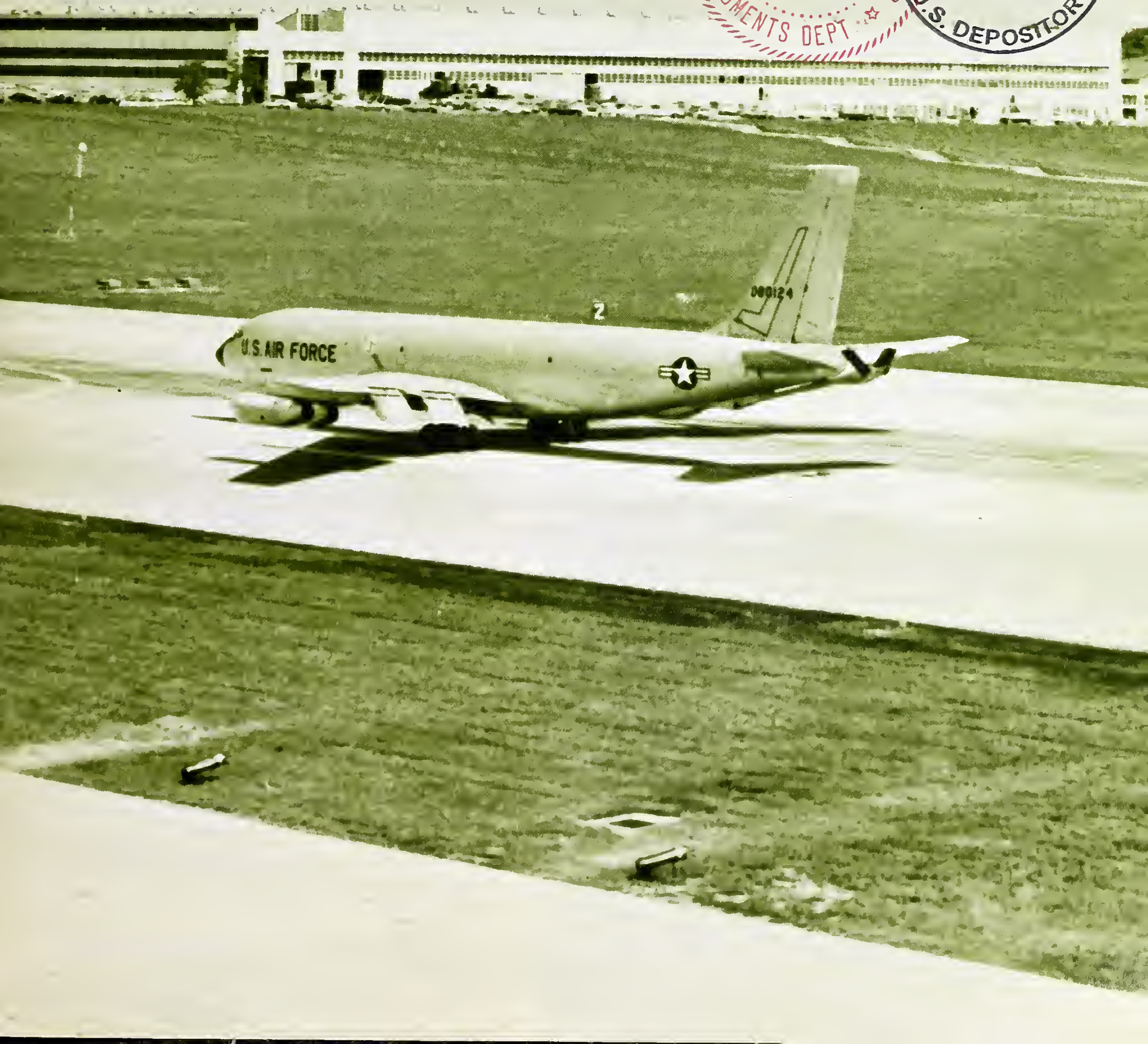

Combat Crew

Magazine of the Strategic Air Command - 27th Year of Publication

GEN. RUSSELL E. DOUGHERTY
COMMANDER IN CHIEF, SAC

MAJ. GEN. EARL G. PECK
Deputy Chief of Staff, Operations

COL. JESSE S. HOCKER
Director of Safety

STAFF

LT. COL. RICHARD W. BLATTER
Editor

G. FRANCIS FARRELL
Associate Editor

SrA GERALD F. MORIARTY
Art Editor

MARY JANE ABBOUD
Editorial Assistant

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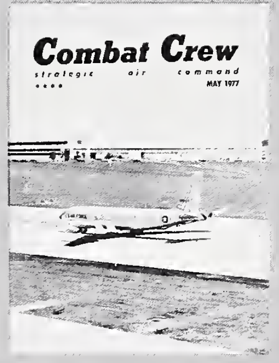

ON OUR COVER

A transient KC-135 taxis out for takeoff on Offutt's runway 12. For details on the unusual crosswind conditions that can exist on this runway, see the article on page 10.

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COMBAT CREW is an internal publication of the Strageic Air Command with the sole purpose of promoting safety. The contents of this magazine are informative and not to be considered as directive in nature. Facts, testimony and conclusions of all accidents printed herein may not be construed as incrimination under Article 31 of the Uniform Code of Military Justice. All names, dates and places used in conjunction with accident stories are fictitous. Written permission must be obtained from Headquarters, Strategic Air Command, before any material may be reprinted by other than U.S. Air Force organizations. Use of funds for printing this publication has been approved by Hq. USAF. Contributions are encouraged, as well as comments and criticisms. Direct correspondence with the Editor is authorized. Address correspondence to Editor, COMBAT CREW, Hq. SAC (DOSE), Offutt AFB, Ne. 68113.

The abstract words *success* and *failure* conjure up as many different images as there are people with an understanding of the terms. One views the successful individual with pride, awe and often envy, while life's failures receive our scorn, our pity, or worse. What is the ingredient, that personality trait, that makes one man a success and his brother a failure?

Several years ago I came across a few lines which I think strike at the heart of the matter. Though I don't recall the author's name, his message has stayed with me.

> *"Nothing in the world can take the place of persistence. Talent will not! Nothing is more common than unsuccessful men with talent. Genius will not; unrewarded genius is almost a proverb. Education alone will not; the world is full of educated derelicts. Persistence and determination alone are omnipotent."*

Inspiring words, but I submit that persistence and determination rest upon a more basic keystone — personal discipline. Without first achieving personal discipline, or, if you prefer, self-discipline, the odds of being successful in any field of human endeavor quickly become astronomical. Without personal discipline to drive their talents, the masterpieces of Rembrandt, Beethoven and Michelangelo would never have been created and the spirit of man would be the poorer. Without personal discipline to enhance the genius of Pasteur, Jenner and Fleming, the body of man would possibly have been denied treatment for rabies and smallpox and the healing powers of penicillin. Edison said that genius was 2 percent inspiration and 98 percent perspiration. The perspiration of Edison — discipline if you will — produced theretofore undreamed of improvements in the way we work and play.

A dream of a better world, supported by conviction and steeled with personal discipline helped Clara Barton to create the American Red Cross and Dr. Martin Luther King to lead the greatest nonviolent crusade in modern times to improve relations between the races.

Without George Washington our nation possibly would not have been founded and had it not been for Abraham Lincoln, it may not have survived. Without self-discipline they could not have achieved what they did. How different our lives and country would be had these two towering titans been lesser men!

Positive achievement in every field of human endeavor is possible only when supported by massive doses of personal discipline. The great artist, soldier, statesman, athlete and scholar, and yes, mother and father, all possess this ennobling trait.

PERSONAL DISCIPLINE . . .

Lieutenant General Bryan M. Shotts
Commander, Fifteenth Air Force

THE DIFFERENCE BETWEEN SUCCESS AND FAILURE

How does one acquire the ingredient that I am touting so highly? Are we born with it? Can it be gained in a single bound? Or, is it achieved in a slow, possibly grueling, step-by-step process? An unfortunate few never find it and they are relegated to obscurity and failure. Others gain it to varying degrees and to that same degree find their rung on the ladder of success.

Although no two people gain the ability to discipline themselves in the same manner and what works in one instance may not work in another, the broad outlines for such a training program are abundantly evident. The process must start at birth. It inculcates the principles of love, respect, caring and careful guidance provided in an atmosphere of "setting the example" by parents, teachers, clergy and others in a position to affect the development of the child. As one matures, the evolution of personal discipline is enhanced or impaired by one's choice of associates and environment.

While every field and every individual can reap untold profit through the merits of personal discipline, nowhere is it more necessary, more vital, than in the military calling. Personal discipline is the cornerstone of group discipline. Unless one can discipline himself he cannot successfully perform as a member of a society where discipline is all important. The disciplined individual, squad, flight, etc. is the hallmark of the successful military unit. Time and time again history tells of the victories, often in the face of seemingly overwhelming odds, won by disciplined troops and equally can relate the sorry tale of routs and defeats suffered by undisciplined armies led by undisciplined officers.

Washington, Jackson, Sherman, Pershing, all disciplined men at arms, stir our imaginations and join their latter-day brothers, Mitchell, Spaatz, Arnold, Doolittle and LeMay in showing us, by their example, what is required of each individual in military uniform today. They charge all of us to excell through persistence, determination and personal discipline to enhance the worth of our Air Force and in turn add to the strength and security of our nation.★★★

ACCIDENTS HAPPEN . . . and happen . . . and happen

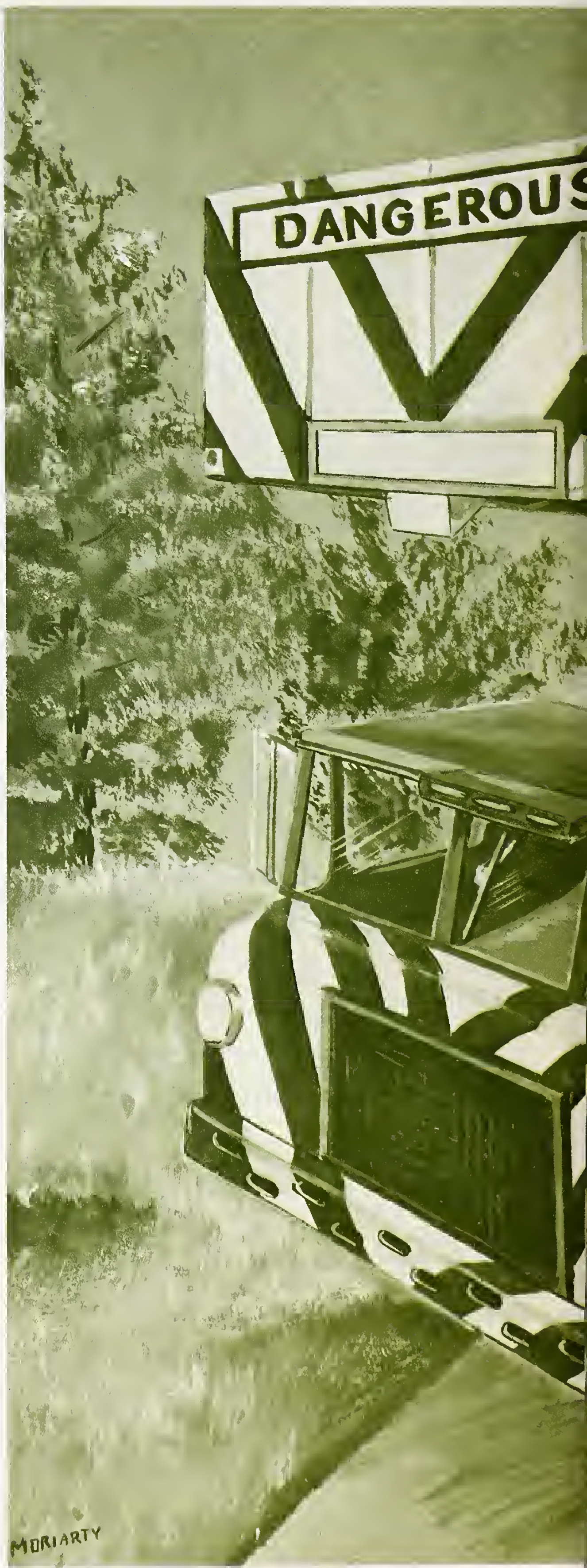
While being driven to the Vandenberg AFB cantonment area from the launch facility, a transporter erector carrying an inert cement filled ground test missile, left the right side of the roadway in a seven percent downhill S-turn and overturned in a ditch. The transporter erector was being driven by an airman who is a member of an ICBM test maintenance squadron missile handling team. The accident curve was on a seven percent grade approximately midway between the main base cantonment area and the minuteman launch sites.

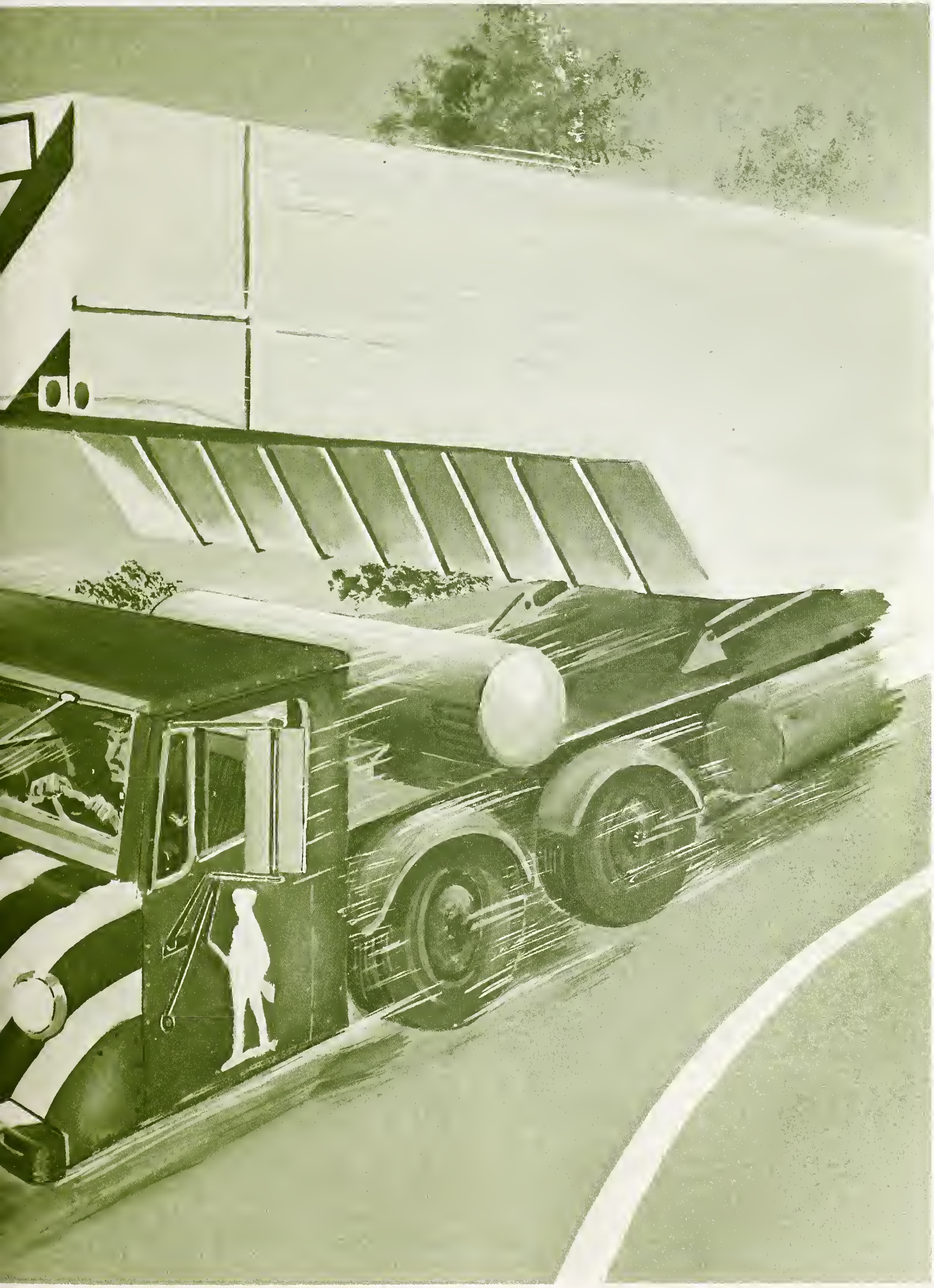
Both driver and passenger escaped injury except for minor cuts and bruises on the driver. The driver and a sergeant passenger were wearing seat belts at the time of the accident. This undoubtedly saved them from serious injury.

The airman had accumulated six traffic points. He was assessed three points in Feb 76 by security police for "a failure to dim headlights." He was also assessed an additional three points in Sep 76 by civilian authorities for speeding (65 in a 55 zone). This accumulation of six points in less than 12 months required him to be placed on the accident prone roster and also required that revocation of military driving license be accomplished. The accident prone identification and revocation, however, were **not** accomplished.

There were other grades as steep and curves nearly as abrupt both north and south of the accident site but no other area on the route had as many potential hazards to traffic in a compact stretch as this S-curve. The security police investigator measured skid marks on the far right side of the right lane, extending for 358 feet to the crash site. A second heavier mark begins at the turnoff and extends 197 feet to just north of the crash site. These coincide roughly with a point where the airman said he saw the left wheels lift off the road. The security police investigator cited the driver with "driving too fast for conditions" based on his "observations and measurements at the scene and judgment."

Continued on page 19





MINIMUM SAFE ALTITUDE WARNING

Recognizing a need to assist the air traffic controller in his efforts to detect aircraft that are within or are approaching unsafe proximity to terrain/obstructions, the FAA has developed and is implementing at all ARTS III facilities, a new computer function called Minimum Safe Altitude Warning (MSAW).

The MSAW function will generate an alert to the controller when a tracked, Mode C equipped aircraft being processed by MSAW is at, or is predicted by the computer to go below a predetermined minimum safe altitude. Controllers will evaluate each alert that is generated and when appropriate will issue a radar safety advisory to the aircraft causing the alert.

IFR aircraft with an operating altitude encoding transponder will automatically be processed by the MSAW function when it is operating. VFR aircraft with an operating altitude encoding transponder will be provided MSAW processing upon pilot request. It is expected that all ARTS III terminal facilities will be equipped with the MSAW function by mid 1977.

Federal Aviation Regulations place the responsibility for safe altitude management on the pilot. The MSAW system is designed to provide the controller with information that he may relay to the pilot to assist him in his safe altitude management responsibility. It in no way relieves the pilot of his responsibility for safe altitude management.

MSAW Altitude Monitoring Logic

- For general terrain altitude monitoring, the MSAW program requires a computerized grid map of each terminal area. The highest known obstruction in each grid bin is used to establish the minimum safe altitude for that particular geographical location. These bins are two miles square. The minimum safe altitude is 500 feet above the highest terrain/obstruction in each bin. The ARTS computer compares the current Mode C altitude of an aircraft against the minimum safe altitude established for the bin. It then looks ahead to see if the aircraft will enter a bin below the minimum safe altitude in 30 seconds if it continues its present heading, altitude and rate of climb or descent established by the computer. At the end of the 30 second look ahead, the program assumes a 5-degree climb angle and checks to see if the aircraft will remain above the minimum safe altitude if it were to start a 5-degree climb immediately. For the look ahead a buffer of 300 feet predicted altitude, instead of 500 feet, above the highest terrain is used.

- For final approach course altitude monitoring between the final approach fix and a point approximately two miles from the landing threshold, the program first checks 100 feet below the minimum descent altitude (MDA)/stepdown fix altitude. It then looks ahead down the final approach course using the rate of descent established by computer to determine whether or not the aircraft will get 200 feet below the MDA/stepdown fix in 15 seconds.

- When the aircraft is at, or is predicted by the computer to go below these altitudes the computer alerts the controller by placing the words "LOW ALT" in the aircraft's data block. An aural alarm is sounded to attract the controller's attention. The controller will evaluate the condition and if appropriate issue a radar safety advisory. The pilot is expected to evaluate the situation and take appropriate action when he is alerted.

- Controllers will use the following phraseology to alert pilots:

LOW ALTITUDE ALERT, CHECK YOUR ALTITUDE IMMEDIATELY.

- It is solely the pilot's responsibility to determine what action he will take when an advisory is issued by the controller. The pilot is expected to inform ATC immediately of the action he will take as a result of the advisory.

There are certain conditions under which the controller will not receive an MSAW generated low altitude alert. These are:

- ATC radar and/or ATC radar beacon interrogator are not operating.

- The ARTS III computer with the MSAW program is not operating.

- The aircraft is not being actively tracked by the ARTS III equipment.

- The aircraft is not equipped with an operating transponder with altitude encoding capability (Mode C).

- The aircraft's Mode A or C transponder is sending garbled, weak or erroneous signals. (Both Mode A and Mode C signals are required for MSAW processing.)
- The aircraft is not within the radar coverage area, either because it is below line of sight or it is too far away from the radar site.
- The aircraft is within three miles of the airport, except when on final approach to an instrument runway, in which case it is on final approach within two miles of the airport, or between the step-down fix and the airport. (Because of the various types of activity in a normal airport traffic area, it is not currently practical to continue the MSAW processing within this area.)
- The aircraft has been inhibited from computer processing for low altitude alerts. (Aircraft are sometimes operated at very low altitudes and MSAW processing for such aircraft will be inhibited by the controller. It would not make sense for the controller to be receiving continuous alarms, nor would the VFR pilot who is intentionally flying low want to be advised to check his altitude.)

Due to the radar antenna rotation time the computer needs about 10 seconds to establish a definite course change and/or altitude changes. Because of this there are two conditions which may result in low altitude alerts being issued by the controller too late to permit the pilot to take corrective action. These are:

- An aircraft whose projected track is outside of a bin containing an obstruction makes an abrupt, rapid turn toward the obstruction.
- An aircraft operating at a safe altitude just above the programmed altitude makes an abrupt descent.

VFR pilots may also obtain MSAW by asking for it if their aircraft is equipped with an operating altitude encoding transponder. VFR pilots who request MSAW are expected to fly at altitudes which will clear all obstructions within two miles of their planned flight path by at least 500 feet.

Phraseology: "(Name of facility), (aircraft indentification) request MSAW."

Example: "Los Angeles Approach Control. BINGO 27 request MSAW."

FAA/USAF ATC Terminal Systems

In summary, ARTS displays on the terminal radar indicator the aircraft identification, flight plan data, altitude, ground speed, position symbol, and other selected information which is fed into the computer by the controller. Specifically, ARTS III is the modular programmable automated radar terminal system in use at medium to high density FAA terminals. It detects, tracks, and predicts secondary radar derived aircraft targets, and is displayed on the radar scope by computer generated symbols and alphanumeric characters. Although it does not track primary targets it is displayed coincident with the secondary (IFF) radar, as well as the symbols and alphanumerics. The system also has the capability of communicating with the Air Route Traffic Control Center's computer as well as with other ARTS III facilities.

Present FAA ARTS locations serving SAC bases are listed below. The * indicates locations where the USAF PAR is co-located in the FAA Approach Control.

Omaha*	for Offutt
Sacramento	for Beale
Shreveport*	for Barksdale
Dallas-Ft. Worth	for Carswell
Ontario	for March
Columbus	for Rickenbacker

The Air Force has a program to upgrade the capabilities of certain fixed airport surveillance radar (ASR) systems. The Programmable Indicator Data Processor (PIDP) is in the development stage, scheduled to begin testing in late 1977, with a projected production model in mid 1979. This system will contain many features of the FAA ARTS system including a Minimum Safe Altitude Warning capability. Other provisions include warnings of deviation of ± 300 feet from assigned altitude, computer tracking/track prediction of selected beacon targets, ground speed readout and semi-automatic handoff between controllers. The beacon code, ground speed, altitude and other data pertinent to the flight will be displayed in alphanumeric form adjacent to the beacon return on the scope. SAC is presently projected to receive 14 of these systems which will represent another major improvement in our air traffic controller aids.

DUWEL
U.S. AIR FORCE
UNIT
DESIGNAT
30

TEAT-safety and you

Captain Robert W. Tibbit
381 SMW, McConnell AFB

At each strategic missile wing there is within the maintenance organization a technical engineering branch unofficially but affectionately known as TEAT, an acronym for Technical Engineering Analysis Team. Although technical engineering personnel have all the basic safety responsibilities shared by all Air Force members, TEAT's special tasks and projects present special safety considerations with impact on the missile crews.

These tasks include a position on the Missile Potential Hazard Team, operating as a coordination agency for hazard reports requiring engineering analysis and supplying engineering expertise during weapon system modifications — and all other situations not covered by normal tech data. All of these tasks include safety considerations, but in some cases there are no specific safety procedures. One of TEAT's responsibilities is to supply the local safety office with engineering information when required. This insures that when approval is given for equipment operations where insufficient tech data exists no injury to personnel or damage to equipment will occur.

Let's look at this from the missile crew's viewpoint. You, as the crewmember, must insure that all operations at your complex are performed safely. When normal tech data procedures are accurately followed, a mishap-free operation is the expected result. On those occasions when there is no existing tech data, or when variations from tech data are approved, how can the crew commander be sure that the actions to be taken will not cause injury or damage? In most cases the crew does not possess the background engineering knowledge, equipment history and reference material to make an accurate analysis of the procedural variation or the impact to weapon system safety. Here technical engineering earns its pay. TEAT and the base safety office carefully study the effect of the variation on all interfaces between each system. Any adverse effects on weapon system safety are analyzed and carefully rectified. TEAT's responsibility in this area is spelled out in SACR 66-12, paragraph 6-1: ". . . technical engineering personnel are qualified engineers and ballistic missile systems analysts who have been specially selected and trained to analyze, isolate, and resolve weapon system problems beyond the scope of normal technical data and technician training."

TEAT is also directly involved with nuclear weapon system safety. At Titan II missile wings for example, technical engineering is co-located with the Martin Marietta Field Engineering Representative (FER). TEAT and the FER work closely on all situations involving the missile and its support equipment. Of special concern to crews is the FER's Coded Switch System (CSS) Engineering Service Program. It affects critical nuclear weapon system safety by monitoring CSS performance including detailed analysis of all CSS equipment degradations.

In the event of an actual hazard as defined by SACR 355-3, missile crews would again find themselves in close liaison with their technical engineering personnel. Hazards such as fires or propellant vapor leaks, which are beyond the crew's ability to control by using normal tech data procedures are extremely unlikely. However, provision has been made to assist the crew, through the MPHT, until base assistance arrives at the complex. As a member of the MPHT, TEAT would be there to use their engineering skills to help resolve the problem.

As you can see, anytime technical engineering is involved with an operation at your complex the safety of that operation has been a prime concern. With a concerted effort by each of us involved in these unusual situations, we can insure that the operation is successful and safe.

CAUTION: ON RUNWAY 12

Captain LUTHER R. WILSON
SSgt DUANE TRAMP
55 SRW OFFUTT AFB

Many SAC crews have had occasion to land at Offutt AFB, NE at some time during their careers. If you are one of those fortunate crewmembers that has made an approach and landing on runway 12 at Offutt, you know that it is probably unlike any other "opportunity to excel" that you have ever had.

If you look up Offutt AFB in the enroute supplement, one of the most important items you will find is the following: "Caution — Rwy 12 0.6 percent downgrad, hi embankment apch end, turbulence apch/ldg. dur med. to hi sfc winds." Even though this statement begins with the word "Caution", what follows does not appear to be anything one should worry about. Certainly it is not the kind of statement that will be etched in the minds of crews as they come down final for a landing on runway 12.

This article has been developed with one purpose in mind. That is, to inform the many crews who regularly transit Offutt AFB of the unique, sometimes dangerous crosswind conditions which may be present during a landing on runway 12. Of course the danger is not with the conditions so much as with the lack of knowledge that they exist. A recent major accident had to cope with the type of conditions I will describe.

There are two wind related problems which may exist when southerly wind flows are present at Offutt. They are vertical shear, which presents an airspeed and directional control problem, and highly variable crosswinds caused by terrain and structures near the runway.

Wind shear is a variation in wind velocity (speed and/or direction) that occurs over a relatively short distance. Airspeed is affected when an airplane is flown from one wind condition — through a wind shear — into another wind condition in less time than ground speed can adjust to the environment. The consequences can range from annoying power and altitude corrections to complete loss of control. Wind shear is a unique hazard because it is frequently undetectable.[1] During early morning hours there is often a cool cushion of air near the surface. This is the result of overnight cooling. Normal upper air movement will tend to overrun this cushion of air. At Offutt the lower level air mass will flow predominantly from the south or southeast, while the upper air tends to flow out of the southwest and at a somewhat higher velocity. The difference in wind direction between the lower mass and the upper mass can be as much as 90°. Wind shear can be present within several hundred feet of the surface. From figure 1 we can see that the pilot approaching runway 12 may receive surface winds of 150° at 10 knots from the tower. At the time he may actually be passing through winds of 240° at 30 knots or higher. At this point the pilot is operating with a tailwind component. As the plane passes into the surface air mass during the final few seconds of flight, the pilot may suddenly find himself high on airspeed. He is also subject to directional control changes as he prepares to flare. This combination often leads to a long and hard landing. This coupled with a runway downhill gradient of .6% could put the pilot in a situation where hot brakes might result.

The second problem is the highly variable crosswinds in the first 4000 feet of runway 12. With a southwest wind, the hangars and buildings located in the main portion of the base complex have an unusual effect on the direction and speed of the wind. Another variable is the abrupt rise in the landing area adjacent to the landing zone. The landing surface is 1048 FT MSL, while the area surrounding the end of runway 12 averages about 1000 FT MSL (See figure #2). During conditions of southwesterly flow, the wind rises abruptly with the surface. As the wind flows over the slope of the hill onto the runway, eddies and currents are created. Wind has a tendency to burble. In extreme cases the wind can actually roll over a landing aircraft, strike the upsloping hill on the north side of the runway, and flow back toward the runway.

Wind measuring equipment for runway 12 is located on the NE side of the runway, 2000 FT from the approach end. Although recorded winds are considered representative, it is not uncommon to see the wind direction indicated by the windsock near the first 1000 FT of the runway blowing directly opposite to the wind direction at the 3000 FT point. During a recent landing mishap at Offutt, a wind of 190 at 6 knots was given to the pilot on short final. A review of the wind recorder 15 minutes prior to the mishap indicated direction varying from 180 to 240 magnetic and speeds from 10 to 20 knots.

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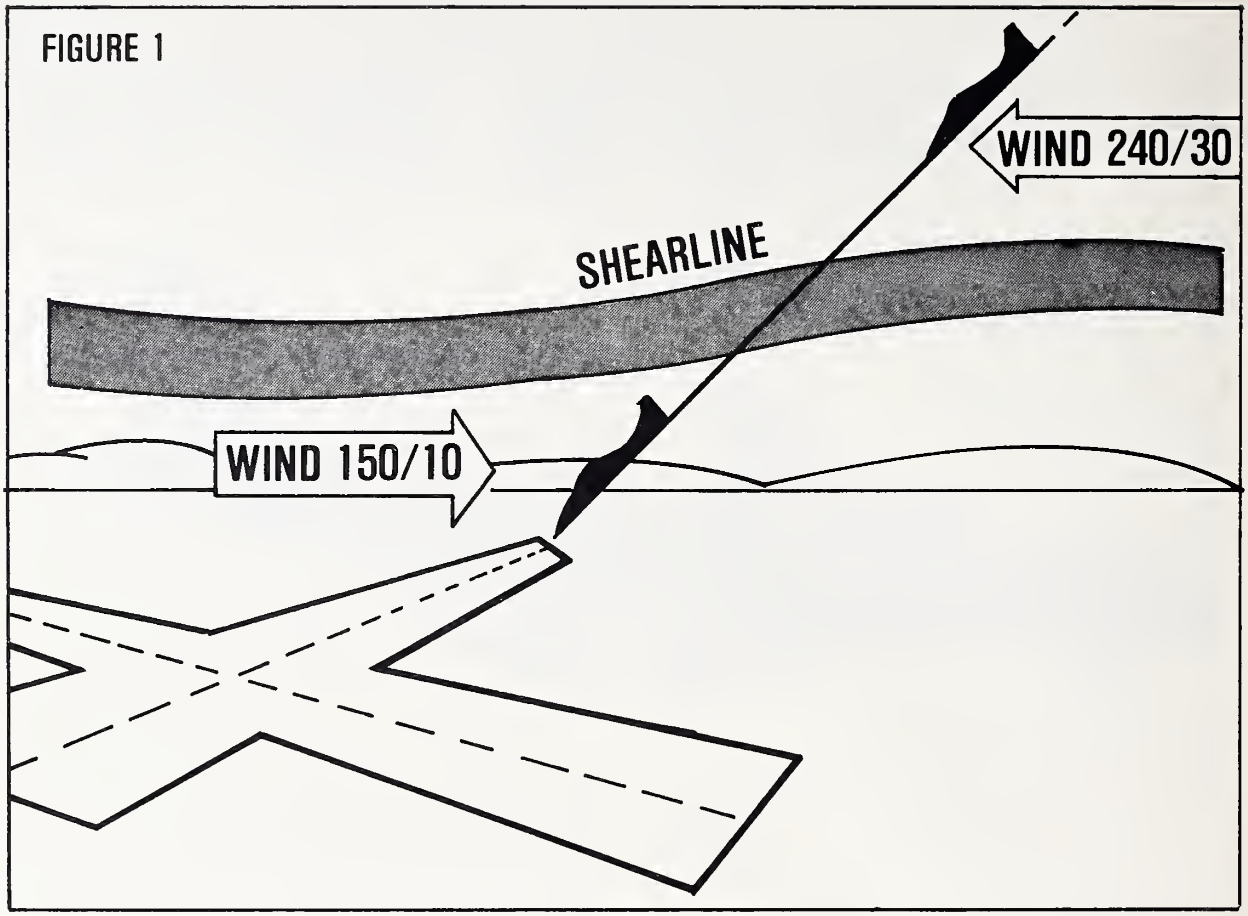
[1] Combat Crew, Wind Shear: The Mystery of the Vanishing Airspeed, February 1976.

PHOTO BY AIC JOHNNY BURT

FIGURE 1



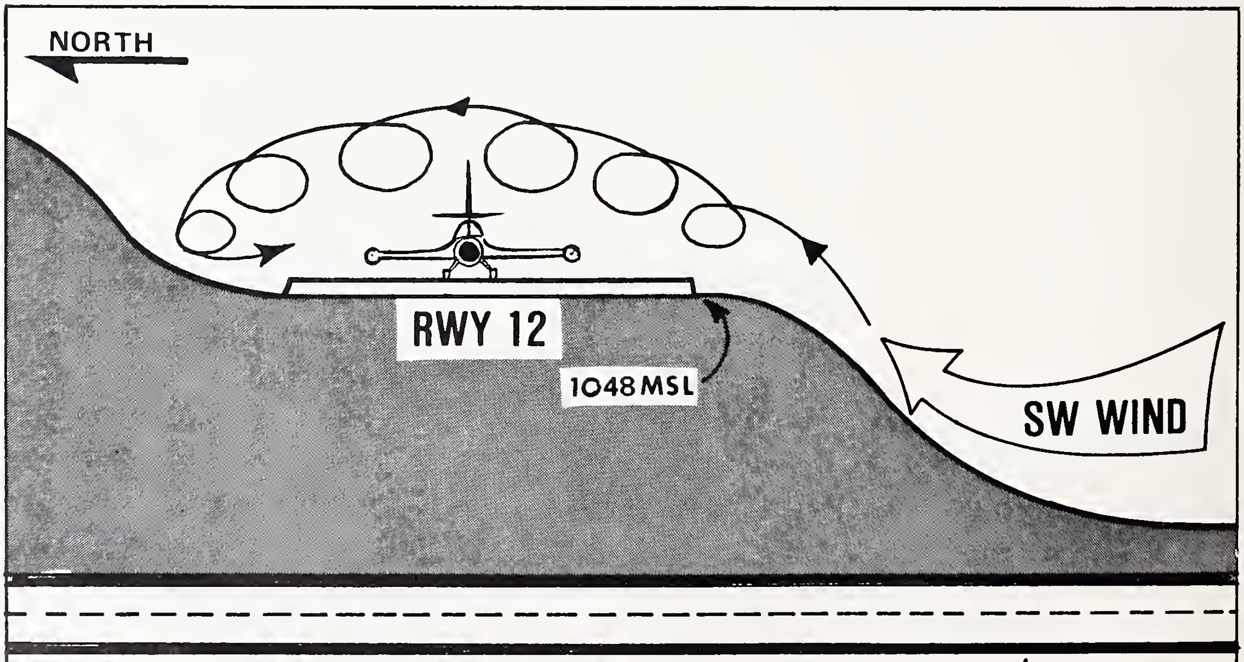


FIGURE 2

After passing the overrun, pilots should be alert for wind shift created by local obstacles near the runway (See figure #3). In the first 1000 FT of runway, winds tend to be blocked and diminished by a hill and a row of homes known as "General's Row." A plane landing in this portion of the runway can expect decreased winds from those encountered over the overrun.

Between the 1000 FT and 2000 FT point the winds increase somewhat but are variable due to a row of trees parallel to the runway (See figure #4).

Between the 2000 FT and 3000 FT point, sharp changes in speed and direction are the rule. There are several open spaces between some large buildings (See figure #5). This tends to create a venturi effect. Normal wind flow changes into a river of high speed air that squirts across the runway from between the buildings.

All things considered, the most advantageous point to land during strong southerly winds is the first 1000 FT of the runway. It is here that the winds are usually the lightest. Once on the ground it becomes easier to cope with the variable winds present between 1000 and 4000 FT down runway 12.

I have shown each situation separately for purposes of clarity. In reality, the combination of a wind shear and strong crosswinds on the surface can create any number of possible wind vectors for the pilot to cope with. Take, for example, the pilot who is on short final and has his airspeed "wired." If he goes from a quartering tailwind to a quartering headwind his airspeed automatically increases. The pilot knows he should land in the first 1000 FT of runway, but the high airspeed is now associated with a decreased sink rate and even a possible pitch-up. The result is a tendency to float and land long. Now he is faced with the possibility of passing through the calmer area in the first 2000 FT into the area previously described where the winds shoot out across the runway with an increasing force. Just as he touches down he encounters the strong winds which can raise the upwind wing and add to the pilot's control problems.

How often do strong crosswinds exist at Offutt AFB? A study made by Detachment 1, 3rd Weather Wing at Offutt indicates that between 1948 and 1970 winds greater than 16 knots are most likely to occur during the months of April, May and June. September and October are also periods of strong southerly flow.

Whether the winds are strong or light, pilots should be aware of the unique conditions which can be encountered while landing on runway 12: (1) variable winds on final approach, (2) effects of terrain near the end of 12, (3) airdrome structures such as "General's Row" and large hangars near the runway. A knowledge of these factors is the important first step in making a safe landing on runway 12 at Offutt AFB.

FIGURE 3

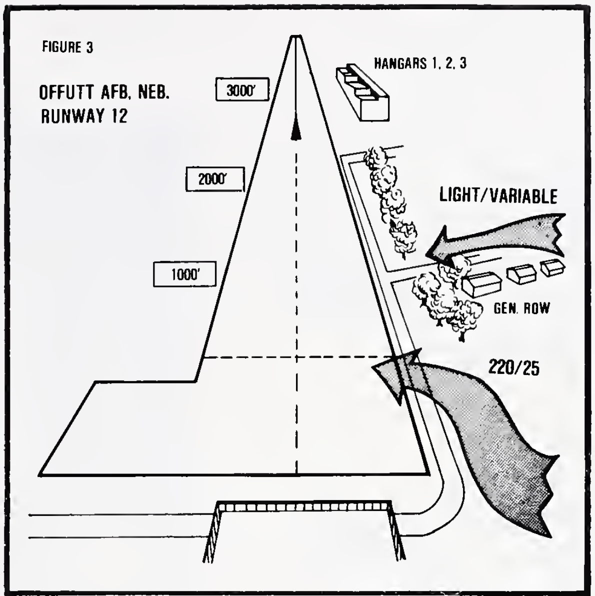


FIGURE 4

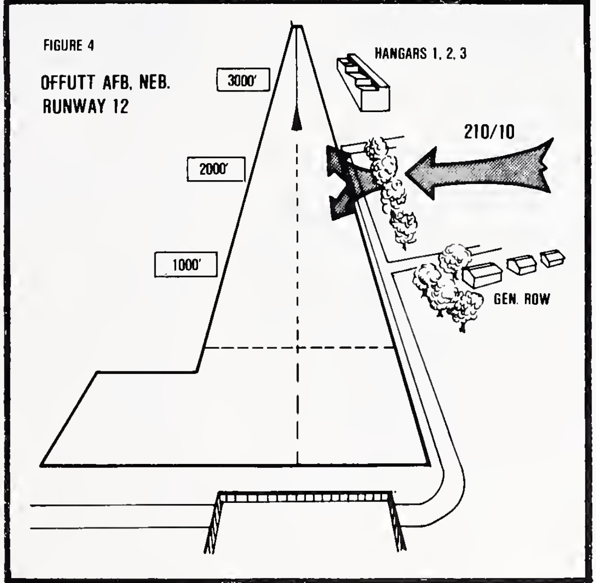
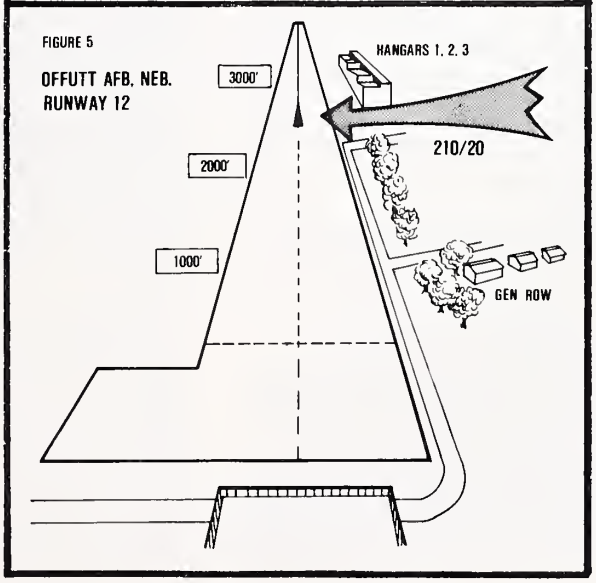


FIGURE 5



WHEN EVERYTHING IS RIGHT, BUT SOMETHING IS WRONG

Capt Jay F. Lacklen
42 BMW, Loring AFB

On a clear night in 1974 a flight of two FB-111s approached a tanker for air refueling. The rendezvous appeared normal to the lead pilot. At eight miles his WSO obtained a radar beacon and the pilot called a visual beacon. He reported FL 180 to the tanker who responded that he was on airspeed at FL 200.

Everything was right. Or was it?

Suddenly the WSO reported the radar return at 2 miles and closing fast.

The pilot requested that the tanker pick up planned airspeed while he quickly rechecked his own.

The WSO called the target at 4,000 geet and said: "It looks like we have a fast overtake."

The pilot rechecked his airspeed — his airspeed was good. He rechecked his altitude — he was at the right altitude. The tanker claimed to be at the correct airspeed and altitude.

The bomber pilot had done everything right, BUT SOMETHING WAS WRONG.

As the pilot looked up again, he just had time to jerk his stick' back before slamming into a small civilian jet. The civilian pilot was killed and both aircraft were destroyed.

There isn't a pilot flying who hasn't, at some time, heard a little voice telling him something is wrong, something doesn't check.

The standard emergencies, such as an illuminated fire light, can be exciting but are actually relatively safe conditions. The problem is clearly defined, corrective procedures are established and the pilot knows he has a problem.

It is the undefined emergency which can more readily lead to disaster. These phantom emergencies may give only the slightest indication, only the most subtle clues. There may be no blinking lights, no nicely calibrated gauge spelling out the problem for you. When it happens you are on your own and there won't be any memorized emergency procedures to bail you out.

AIRSPEED TO BURN

An airliner began a normal departure when the pilot noticed his airspeed was high. He raised the nose and increased his vertical velocity only to find his airspeed still climbing. He checked his power at the proper value and picked up the nose again. Now the airspeed climbed even more rapidly. The pilot continued to raise the nose until, at an exorbitant indicated airspeed, the aircraft stalled, spun and crashed.

The accident board found the pilot heat inoperative on the ill-fated airliner. Ice had trapped air in the airspeed indicator which then acted as an altimeter. The higher the plane climbed the higher the airspeed increased. Undetected, this condition ended as it had to, in a low speed stall.

The pilot must have suspected that something wasn't right, that possibly one of his instruments was lying to him. But he failed to resolve the problem before the problem resolved him.

While the phantom emergency might leap on you from anywhere, the maintenance forms can give you a clue as to what to watch more carefully. Any system which has been worked on for faulty performance should be suspected immediately if things suddenly seem to be going haywire.

I GUESS IT'S FIXED

A B-52 crew had just completed a low level, terrain avoidance bomb run. On the previous mission, the low level mode of the autopilot had run in full nose up trim before abruptly disengaging two minutes before the first release. Maintenance had worked extensively on the system but wasn't sure the malfunction had been corrected. They advised the crew to use caution during the low level and to report any further problems.

The pilot kept an eagle eye on the trim indicator through an hour of low level flight. The first bomb run proceeded normally with nary a false move from the autopilot. Thinking maintenance must have fixed the malfunction, he transferred control to the copilot for a climbing, decelerating turn to the racetrack.

As he reached for the low level map, the pilot vaguely remembers noticing the trim wheel driving. While this motion was normal for the changing condition, the direction was not. A faulty servo was running the trim down rather than up.

Shortly after leveling at 800 feet AGL the aircraft snapped nose down as the autopilot, having compensated to its limits, disengaged. Only airbrakes and frantic back-pressure recovered the plane just below 500 feet AGL.

The warning indication insidiously appeared just after the pilot had assumed the system must have been fixed. Any such assumption at 800 feet AGL may prove most unfortunate.

OK, suppose that you recognize the warning before it becomes a problem. Your troubles may not be over.

MAKE THE NEXT ONE A FULL STOP

A Navy student rolled out on final in his A-4 but decided "something didn't feel right." After wisely going missed approach he began rechecking his information on downwind. He discovered his airspeed did not provide the proper angle of attack (AOA) for his configuration. The Runway Supervisory Unit controller convinced him his AOA indicator had malfunctioned and told him to fly airspeed for the full stop. As the student touched down in a shower of sparks to the sound of disintegrating metal, all concerned realized the true source of the problem-the-up-and-locked landing gear.

Once you've determined you have a problem there are three steps which can usually pinpoint the trouble. First, recheck your indications. Have you covered the entire checklist? Are all readings normal? Are the circuit breakers in? Second, crosscheck readings where possible to determine the accuracy of individual readings. Is the trim correct for your airspeed and configuration? Do the TACAN and navigator agree on your position? Does doppler groundspeed agree, roughly, with indicated airspeed? Finally, go outside your own systems for information. The FB-111 pilot in the first example might have asked ARTCC if they showed a good rendezvous. Did the wing man show the cell at the ARCP (due to leads inop tacan, the cell was 15 miles off track)? Could the tanker have flashed his lights for positive identification?

All the planning for phantom emergencies may be to little avail, however. The problem may be beyond your immediate grasp and you may not have time for checking and cross checking. If the FB-111 pilot had five minutes to check out all possible considerations, he no doubt would have discovered what disaster awaited him and broken off his approach to the bogus tanker.

But phantom emergencies are seldom so cooperative. One moment you may be low level thinking about your next bomb run and the next moment find yourself staring into a pine forest as the B-52 crew discovered.

In almost all cases, however, you will at least have enough time to make a decision. The shorter the time available the narrower your choice of actions. There is one action which is always in order — GET OUT OF THE SITUATION IF YOU DON'T LIKE IT. Don't wait for that strange radar blip to fill your windscreen, make a precautionary alter. Don't keep raising the aircraft's nose if the resulting angle of attack is beyond anything you've ever seen — level off and set a known power rating. Don't try to land after one pattern with contradictory indications — climb to the upper traffic pattern and check it out.

The hardest part of deciding to opt out of a situation is in admitting you may have lost control, and something is wrong that you can't figure out. Don't let this excess of hubris and lack of prudence jeopardize your safety and that of your crew. In mid-Pacific an ARC Light B-52 cell saw an aircraft approaching at their altitude. There couldn't possibly have been any traffic in this position — but cell lead took a 20 degree alter anyway. The "traffic" turned out to be a star twinkling through an atmospheric anomaly. Does this sound overly cautious? Maybe the FB-111 pilot should have tried it.

The old proverb about war holds much relevance to flying. "Flying is a hundred hours of routine operations punctuated by moments of stark terror." When a phantom emergency begins slipping up on you during a routine mission, be ready for it. When you hear that little voice telling you something doesn't check, listen to it. It may be trying to save your life.

ABOUT THE AUTHOR

Capt Jay F. Lacklen is currently assigned as a standardization evaluator. His flying background includes a Sea Tour in C-7's and extensive operational experience in the B-52G. His educational background includes an AB in History from the University of North Carolina. Capt Lacklen is looking forward to his upcoming assignment to Castle AFB, Ca. as an instructor pilot.

CRASH A

MAJOR WILLIAM M. HARLEY
716 Bomb Sq Kincheloe AFB

A recent aircraft accident occurred which claimed the lives of several Air force personnel. Miraculously, some individuals made their way to safety amid the flames and confusion of the crash. One of the survivors was interviewed by the author. The following is excerpted from a discussion of his experiences.

Q. Did you have any warning at all of the impending crash?

A. No. We all heard the landing gear come down and knew we were in a descent for landing. The descent seemed to be normal, with no unusual turns or bank until I felt an abrupt pitch-up followed immediately by what I first thought was an extremely hard landing. Then it felt as though we bounced into the air for several seconds. We came back down hard again and the aircraft began to break apart.

Q. That's when you knew you were in trouble?

A. Yes. We immediately experienced some violent thrashing and flailing as the aircraft apparently cartwheeled after the right wing hit the ground. As the aircraft came apart, an intense fire broke out. I believe it was caused by ruptured fuel tanks under the floor. It lit up the entire inside of the fuselage. There was also a deafening racket as the airplane plowed through the trees and came apart. Then we came to an abrupt halt.

Experience has shown that in almost every crash landing, even under controlled conditions, the aircraft will experience at least one "bounce."

Q. Were there any physical factors which you feel may have been in your favor and which contributed to your survival?

A. Yes. All of the passengers except one were seated in airline type seats, facing aft, between the forward crew compartment and the trailing edge of the wing. The one exception was seated further aft, just forward of the boomer's station. Fortunately for us, we were in the one section of the aircraft which remained relatively intact throughout the crash. I'm also certain that we must have received some heavenly protection.

Q. What about the airline-type seats — were they a factor in your survival?

A. I believe the seats kept us from being thrown about inside the fuselage and did offer a great deal of protection both from flying objects and burning fuel.

The aft facing seats aid in distributing impact shock over a wider surface and prevent "whiplash" side loads on waist and torso. They also provide a head rest to prevent head and neck injury.

Q. Were you wearing a safety belt or harness?

A. All of us who survived had seat belts fastened. Without seat belts, our injuries would surely have been serious enough that none of us could have escaped from the burning wreckage. We undoubtedly would have been thrown out of the seats and sustained some very serious damage.

Q. I have observed a general tendency for passengers in both military and civil aircraft to behave as though an accident will never occur — as if advance planning and preparation are an unnecessary bother. The "it can't happen to me" syndrome. In retrospect, do you feel that you and some of the others were victims of failure to prepare adequately?

A. Definitely. Of the injuries we sustained, some probably could have been prevented. When the aircraft impacted there was a great deal of equipment and debris flying about which doubtlessly caused injuries. Perhaps some of it could have been more adequately stowed or secured. In my own case, for example, I

D SURVIVE

thought we still had about ten minutes before landing. I still had my briefcase on my lap. I'm sure that it caused some of my own bruises and cuts. My most severe injuries however, like those of the other survivors, were second and third degree burns on exposed skin areas — that is, our faces, arms, hands and ankles. I believe that most of our burns were caused by splashing fuel. I am convinced that nomex flight suits and gloves would have significantly reduced the severity of our burns. We were all wearing blue AF uniforms and had all removed our jackets. Some had only short sleeve shirts for protection. Fortunately, I was wearing a long sleeved shirt which gave me some protection for my arms which were burned much less severely than my exposed hands.

Accident statistics indicate that layers of clothing of almost any kind, other than synthetics, markedly reduce the incidence as well as the severity of burns.

One other significant factor, lack of proper planning and preparation, could have made the difference between life and death. That factor concerns our knowledge and familiarity with emergency exits. All of the survivors were extremely fortunate that a large hole in the side of the fuselage provided an immediate exit. Had the hole not been there, I'm not sure that we would all have made it. I, for one, had not thoroughly familiarized myself with the location or operation of the emergency exits. That's something I will not overlook again.

Q. Once clear of the wreckage, what did you and the other survivors do?

A. We got together at a safe distance from the burning wreckage. We assumed that we were only a short distance from the airfield and expected to get immediate help, so we just sat down to wait. Because of our injuries and because we did not know our exact location, we ruled out the option of trying to walk out of the crash area. We tried to give each other first aid and we built a fire for warmth. It was fairly cold and the onset of shock brought agonizing chills.

Q. Looking back would you have been better off if you had tried to walk out?

A. Definitely not. The aircraft came down in a densely wooded, swampy area. There was a lot of ground fog. The first people who got to us had to walk in from the nearest road which was about a mile away and used the smoke from the crash to guide them. If we had tried to walk out in our condition and in the fog, without any firm idea where to go, we would surely have gotten lost. Since the rescue party had no knowledge, until much later, of how many people were aboard, they would not have even looked for us until hours later. No, our decision to stay at the crash site certainly cut down on recovery time.

Q. How long did you wait for help?

A. About 45 minutes after the crash, two volunteer firemen reached us on foot. A little while later a light plane circled overhead so we knew more help would be on the way. As it turned out, a rescue helicopter arrived but could not land until equipment was brought in to clear a landing area. Medical assistance finally arrived when the chopper landed. This was about three (3) hours after the crash. We were then taken to a hospital.

Q. Will you fly again?

A. In another couple of months, when the burns have fully healed, I'll be back on my crew. That's the only reason I'm not flying now.

There is a valuable lesson to be learned from the post-accident survival situation encountered. Clear thinking and recall of USAF survival techniques were important adjuncts to eventual return to active flying duties.

PACE

A VIEW FROM THE CLASSROOM

Captain John B. Hammond
OTSL, Carswell AFB

Today, our world and society writhe under the impact of political activists and turmoil. Rapid technological development has replaced security with uncertainty and increased the need for training and education programs to keep pace with change.

The same change that has spawned the need for better training programs in an environment of prosperity, has also seen the increased proliferation of attitudes of:

> *"Apathy, Indifference, Unconcern, Complacency, Inertia, Double-Standards, and Waste."*

A great deal of attention has been paid to the quality of American students with respect to their academic ability in both high school and college. The students are exhibiting poor communicative skills and are concentrating their academic efforts toward broad social science backgrounds instead of professional careers and hard sciences. Many theories have been voiced as to the reason(s) for this minimal performance. It is, however, beyond the scope of this writing to evaluate these theories or the quality of present curriculum development. Instead, this article reflects one instructor's view of an increased need for personal involvement, training, and professionalism with respect to those personnel performing jobs in a nuclear environment.

As an Instructional Systems Manager, involved in the training of both full-time and additional duty nuclear safety personnel. I believe the importance of professional and timely training in nuclear safety cannot be over emphasized. In an environment of political unrest, the protection of our nuclear weapons and strict adherence to directives must be complied with by everyone assigned a nuclear role.

In discussions with students in the classroom, a few students reflect the feeling that overall, directives are too restrictive and it's really the supervisor's job to enforce safe practices around nuclear weapons. And some have difficulty seeing how their job actually impacts on the overall mission — confusion between the forest and trees. With this in mind, let's consider for a moment a word that has been in the vocabulary of all of us for many years, but when applied to the arena of nuclear weapons, might suggest a solution. That word is **PACE.**

As defined by Webster's Dictionary, pace is "a rate of movement; rate of progress; a parallel rate of growth or development, and an example to be emulated." Pace is used with a leadership connotation — in a positive manner. When used as an acronym, it can serve as a challenge to each of us to personalize our involvement, support of, and adherence to nuclear safety requirements and directives.

Used as an acronym, the letters in the word PACE stand for **personal, attitude, concern,** and **environment.** A greater degree of personal involvement/attention is required on the part of all personnel working with nuclear weapons. Attitude continues to be the factor that can make or break any safety or security program. We need to examine our individual attitudes about the responsibilities we are charged to uphold when working with nuclear weapons. Further, each of us needs to reaffirm our concern for how the operation or task we perform in a nuclear environment is carried out. The complacent and apathetic attitude displayed by some personnel in the arena of nuclear weapons must be eliminated. As pointed out by Professor Herman Kahn, in his book, "Thinking about the Unthinkable," the possibility of inadvertent war and accidents increases not only because of many more weapons available, but because of many more organizations in existence, each with different standards of training, organization, and degrees of responsibility. The possibility of unauthorized behavior, irresponsibility, misunderstanding of orders, or lax discipline inevitably increases.

For each of us, a decision on our own degree of professionalism is required. Whether our jobs involve the physical handling of nuclear weapons, or a more supportive role of safety representative or instructor — we must all shoulder the responsibilities we accepted when we volunteered to serve in the military. Further, increased emphasis should be placed on insuring that each individual assigned duties around our nuclear weapons and delivery systems — fully understands the importance of his or her job and accepts the additional constraints deemed necessary by regulation to safeguard the safety and security of our weapons. Anything less than 100% effort in this regard is unsatisfactory. And in the mind of the author, anyone failing to uphold these standards should be removed from nuclear associated duty. For those individuals who believe that the present way of accomplishing a task is wrong, the "system" permits suggestions to be submitted to the respective directive for incorporation of approved changes. Submit the change if you feel strongly about something — but don't ignore the directives just because you don't agree with it, or feel that it's too restrictive.

It is my recommendation that we apply the word PACE to our respective roles, remembering the importance of our personal attitude and concern with operations in a nuclear environment. Commanders and supervisors as well as safety and training personnel must make every effort to further the importance of training, professionalism on the job, and strict adherence to directives of all personnel when working with nuclear weapons. Remember! Each of us has a responsibility to insure that our performance and attitude reflect the highest standards in excellence, and that our's should be a PACE setting approach to nuclear weapon safety and security awareness.

ACCIDENTS HAPPEN . . .

Continued from page 4

The overall speed limit for all vehicles on the curve is 25 mph. Trucks are advised by a sign to "use lower gear." Since the accident one additional sign, "Trucks 15 mph," has been added. Instructor drivers and other drivers questioned about which gear they use to descend that hill stated that 4 main 2 auxiliary or 3 main 2 auxiliary were their usual choices. An experienced driver for the Boeing Company stated he used nothing higher than 3 main 2 auxiliary coming down that hill with a missile aboard. All explained that 2 auxiliary gives engine torqueing braking power that you do not get in 3 auxiliary.

The airman driver, with only four months experience as a qualified transporter erector driver, chose to use 4 main 3 auxiliary to descend the hill. He said that he had used that same gear ratio to go down the hill before. In fact, he did drive the same rig over the same route just one week prior to the accident. The airman said he chose to enter the curve and descend in 4-3 at 2100 rpm which he thought would equate to about 25 to 26 mph. In other words, he chose to run the curve at or above the maximum speed limit for vehicles of all types.

He did, later, downshift before entering the curve, but only the main transmission. He shifted from 5-3, the highest possible gear ratio, to 4-3. He did not downshift the auxiliary and in failing to do so, forfeited engine braking power. With brakes alone, he was unable to hold his rpm at 2100 or his speed to 25 mph. The vehicle rpm rose to approximately 2300 which equates to about 32 mph after exiting the first turn on the downhill straightaway.

The transporter erector tractor sustained heavy damage. The container was declared a total loss, with damage to the GTM listed as minor. Total damage caused by this accident, however, was placed at $751,170!

Obviously, training for this transporter erector operator was not explicit enough regarding gear selection, braking techniques and systems operation, and was not tailored to the known hazards existing on the convoy routes.

Undoubtedly, the methods of selecting transporter erector drivers will be reviewed and revised to add more stringent requirements for maturity, stability, driving ability, and experience.

Also, the training program will probably be revised to emphasize more explicit instruction in gear selection, braking techniques, system operation and limitations as well as the known hazardous areas on existing convoy routes.

The point is if more people get involved before the fact in our accident prevention programs, we can prevent **accidents that happen . . . and happen and happen.**

BIG
INSTRUMENT
HOLDING

DETERMINING THE PATTERN

Captain John L. Wilson
1st Combat Evaluation Group
Barksdale AFB

When was the last time you were required to hold in either a charted or uncharted holding pattern? It has probably been a while and then only in a pattern associated with a high altitude IAF. This article will discuss one technique for determining the location of uncharted holding patterns. There are other techniques that can be used. Next month, entry procedures and some techniques for flying the pattern will be discussed.

Suppose you received the following clearance from ATC: "Proceed present position direct to and hold northeast of the 40 DME fix, 225 degrees radial, Podunk VORTAC, 10-mile legs, left turns." After the initial shock of receiving such a clearance, there are a number of actions required in order to establish yourself in the pattern. The first is to Tune, Identify, Monitor and Select, and then get the aircraft turned to a heading that will take you to the fix. If you are not sure how to determine the heading other than to say, "Give me a heading, Nav," you may want to review the Fix-to-Fix techniques in AFM 51-37, paragraph 2-22. Once the heading is established, your next step is to locate the pattern in relation to the fix, in this example the Podunk 225°/40.

When determining the placement of the pattern in relation to the fix, keep in mind that you must always fly inbound toward the fix, along the designated radial. You never turn to the fix and fly away from it along the radial or course. Therefore, on any given TACAN radial there are only two possible legs toward a fix (Figure 1), one inbound along the radial toward the fix and one outbound along the radial, again toward the fix. The key to which is the proper direction is contained in the first item in the holding clearance, in the example used here "northeast." But, "northeast" tells which side of the fix the pattern is located, not the direction to fly while going toward the holding point. Like a wind direction, the holding direction tells you where you must come from to fly along the inbound leg of the pattern. To make a diagram of the holding pattern, the inbound leg could be represented by an arrow drawn opposite the holding direction given in the clearance, with the head of the arrow representing the holding fix. Thus, in the example given, an arrow would be drawn to the southwest, with the head of the arrow representing the 225° R/40DME (Figure 2a).

The difficult part is done at this point. All you need to do is determine the outer DME limit of the pattern, and on which side of the radial the outbound leg of the pattern is located. Since, in this example, you will be flying away from the station while flying inbound to the fix, the outer limit of the pattern will be 10 miles closer to the station. The tail of the arrow is thus labeled as 30 DME. For this pattern, left turns were specified, which places the outbound leg on the south side of the radial. The complete pattern would be as shown in Figure 2b.

Uncharted VOR holding patterns are easier to determine since the holding fix is always at the station. Once again you always hold inbound along the radial toward the station and the direction of holding indicates where the pattern is located. For example, a clearance to "hold northwest of the Ardvark VOR on the 330° R" would result in the pattern shown in Figure 3. Keep in mind that where the turn direction is not specified, right turns should be made. Also, for VOR holding and TACAN holding without leg length specified, the size of the pattern is determined by timing.

Try drawing a few on your own using the holding clearances listed below. When you get done, check your answers with the ones on page 23. If you are still having trouble, get together with an IP and have him help you.

1. Hold northeast of the FAKE VOR, 045°R.

2. Hold northwest of the Vector VORTAC, 315°R, 20 DME, 10 mile legs.

3. Hold northwest of the Vector VORTAC, 135°R, 30 DME, 8 mile legs, left hand turns.

4. Hold south of the Vector VORTAC, 180°R, 15 DME, 12 mile legs, left hand turns.

5. Hold west of the Cross VOR, 270°R, left hand turns.

Quiz Answers on page 23

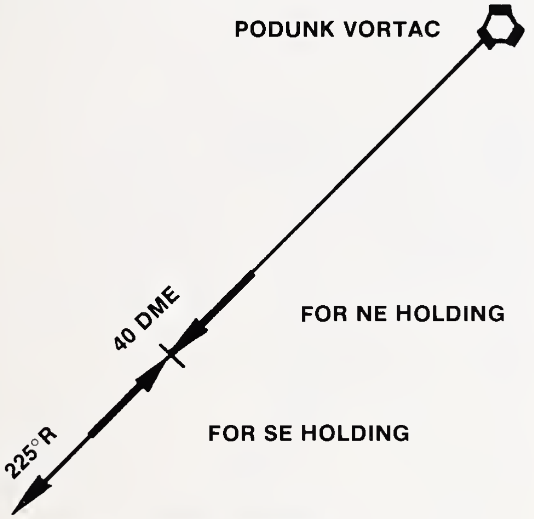


FIG 1. THE TWO POSSIBLE HOLDING DIRECTIONS AT PODUNK 225°R/40DME

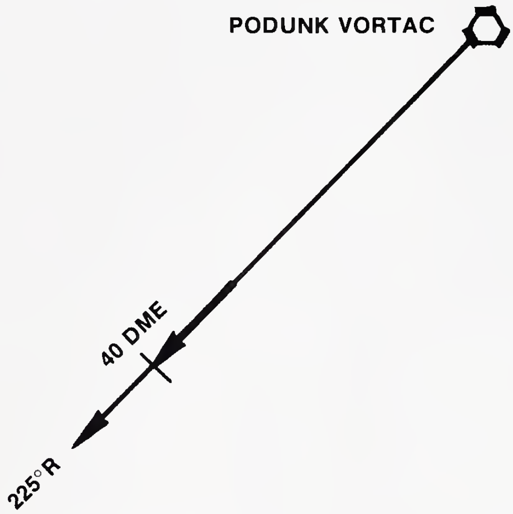


FIG 2a. SW ARROW FOR NE HOLDING

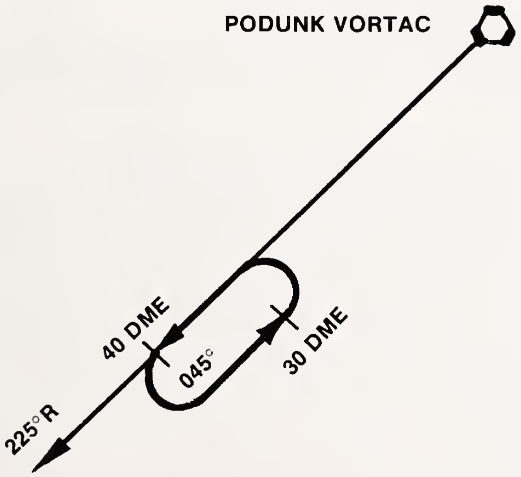


FIG 2b. PATTERN FOR "HOLD NE OF THE PODUNK 225°R, 40DME, LEFT TURNS"

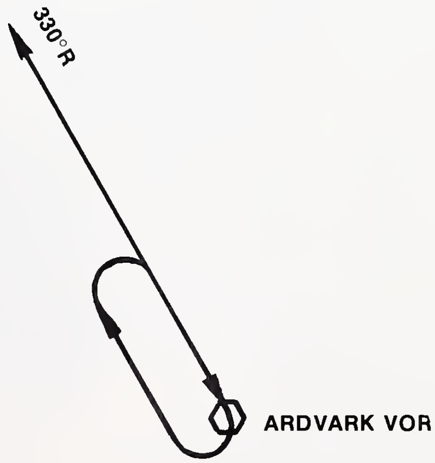
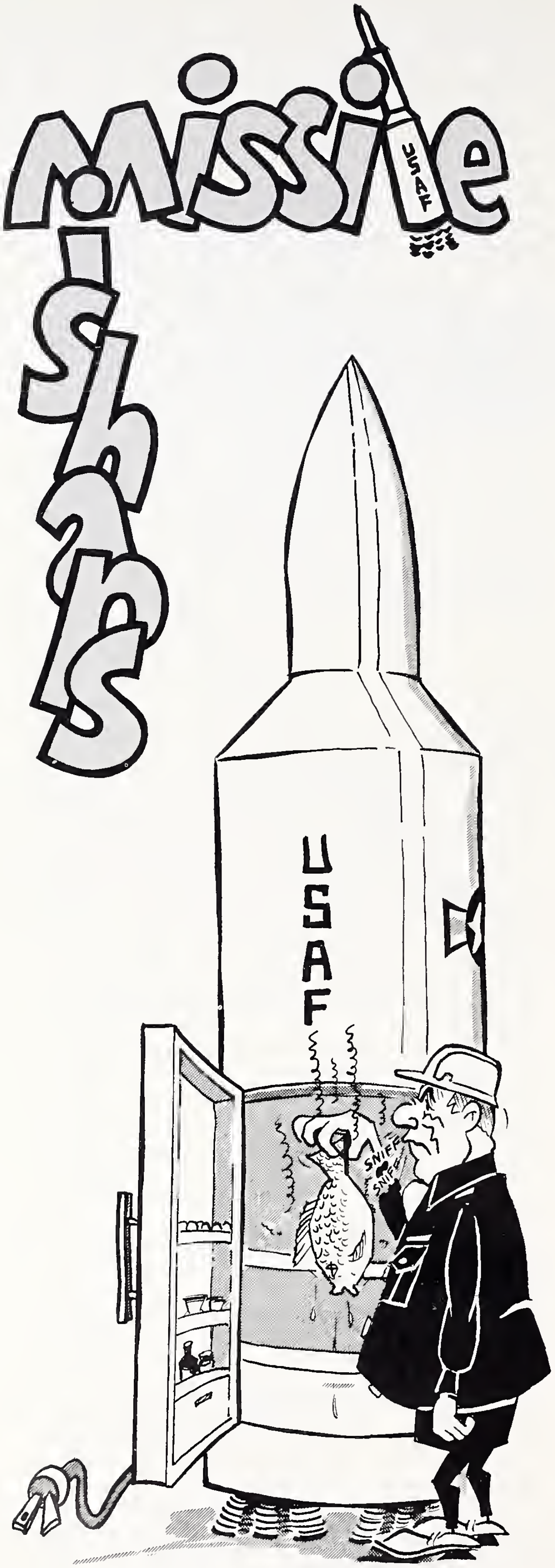


FIG 3. HOLD NW OF THE ARDVARK VOR 330°R (150° COURSE)

Missile Mishaps



BAD CONNECTION

Prior to this mishap the Minuteman LF was being prepared for operational testing. At one point during preparation, the G&C had not been installed and coolant lines were disconnected from the surge attenuators and connected together to allow for coolant circulation. Somehow after the G&C was installed, the coolant lines were not reconnected properly.

Approximately 25 minutes into alignment, the CTT experienced a parity verify error. Job control directed shutdown of AVE and a 15-minute wait before attempting another startup. The CTT restarted the AVE and experienced a Channel 13, MOSR 57, Standby-No-Go, in alignment. Job control directed another startup. VRSA Channel 13, MOSR 57 recurred. Job control then directed the CTT to shut down AVE and perform required maintenance in preparation for G&C change. The missile maintenance team (MMT) arrived at the LF to remove and replace the G&C. After raising the G&C from the missile, sodium chromate was observed on the third stage motor dome. Job control was informed of the condition and directed a wet missile check be performed. Quality control personnel were dispatched to the site to perform the wet missile check, and reported one and one-half inches of chromate on top of the third stage and one-half inch at the second stage vent ports. A considerable amount of chromate was on the launch tube floor. The G&C was pressure checked in the E-Lab using the leak test fixture. Pressure could not be maintained, indicating an internal leak.

BRINE CHILLER TROUBLE

A periodic inspection team was dispatched to a launch facility to perform a special Dash-6 inspection which included environmental control system (ECS) checks for normal operation. The team completed their maintenance without incident.

They had secured the launcher and were securing the soft support building prior to site departure when the refrigeration team member informed the team chief the brine chiller ECS gauges were abnormally low. This was followed by brine chiller shutdown and status-out indications received at the launch control facility.

The team repenetrated the launcher and encountered the emergency fan running, diminished cooling air to equipment racks and hot equipment racks.

They performed emergency shutdown for loss of cooling air. Initial troubleshooting requires verification that the emergency fan is supplying cooling air to electronic racks during mode changes from normal to emergency ECS operation. A manometer is not required for this check and consequently air flow may be below tolerance, yet not detected until equipment damage results.

As a result of this mishap, AFTO forms 22 were submitted and approved requiring mandatory manometer checks and expanded checkout procedures of the emergency fan and dampers.

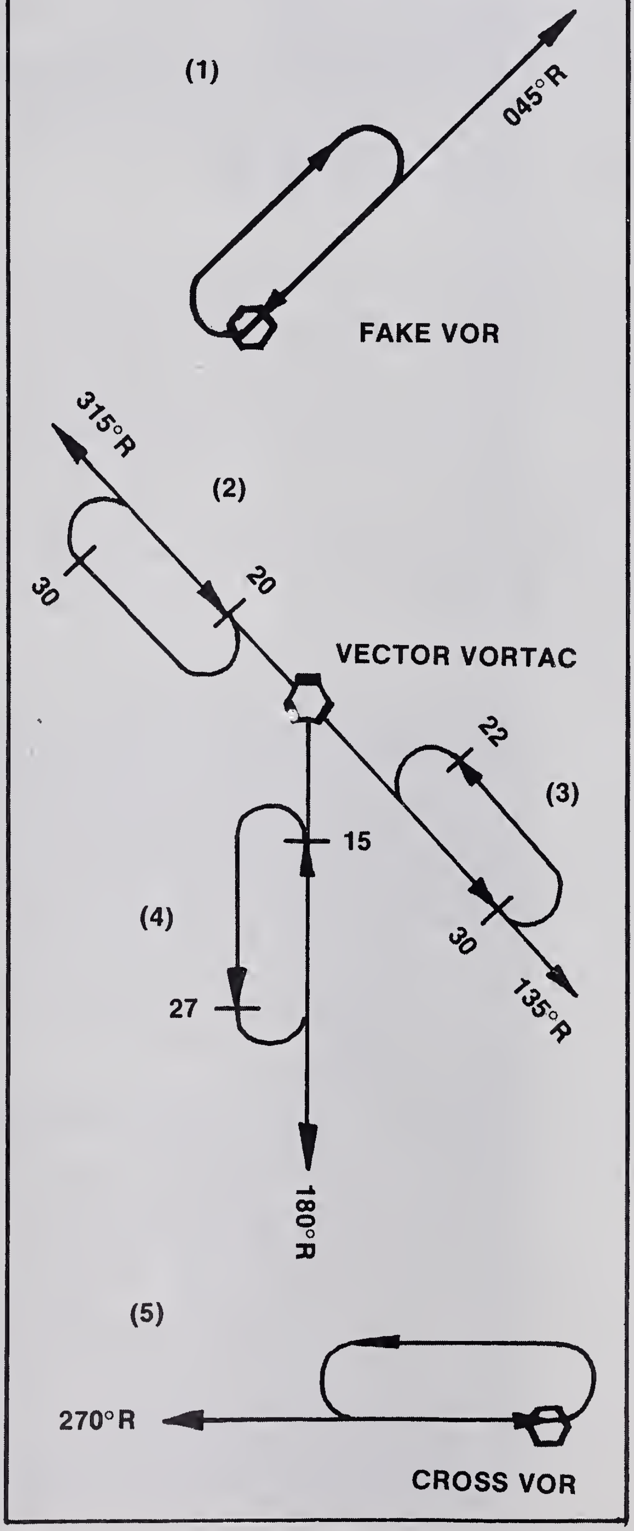
WATER LEAK

During a FB-111 level one system checkout, an accumulation of a half cup of water was discovered in the gyro-stabilized platform. Inspection of the coupling connector on the SRAM air-to-water heat exchanger on the aircraft revealed the connector gasket had been incorrectly installed. This allowed water to leak into the duct system during nonpressurization. When the system was pressurized, the water was blown into the missile system. The gyro-stabilized platform was replaced and the SRAM systems functioned properly. Cost to the Air Force was over $3900 — because someone incorrectly installed a $1.70 gasket.

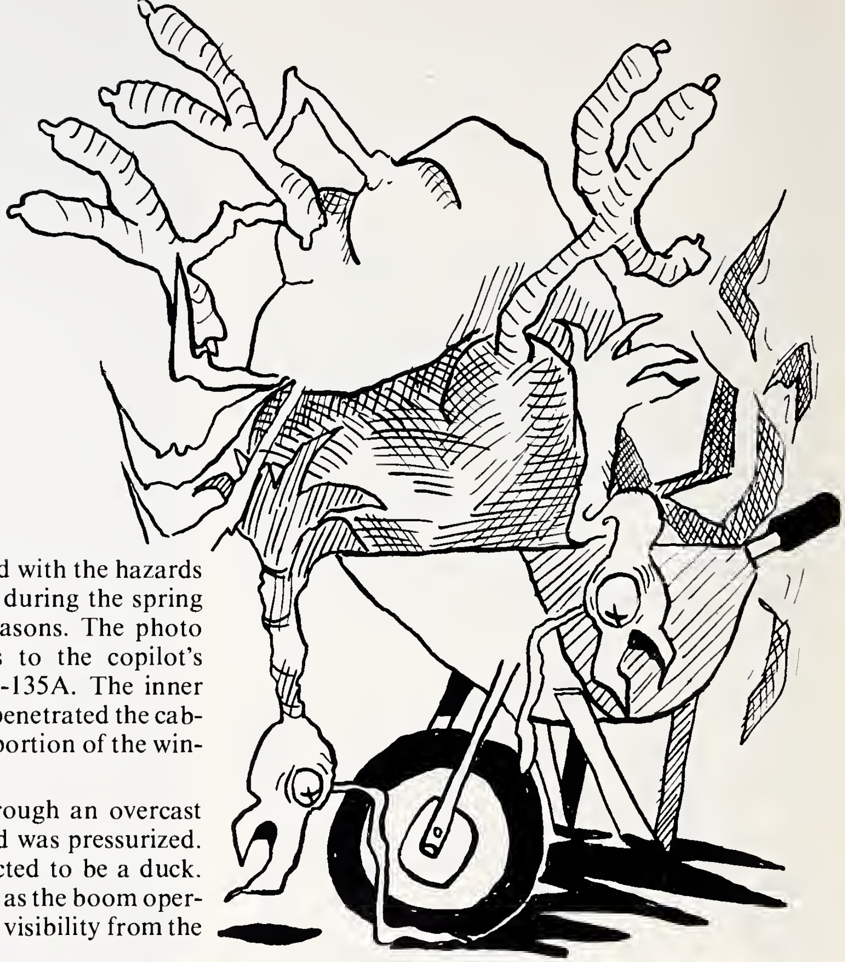
BIG INSTRUMENT

Continued from page 21

QUIZ ANSWERS

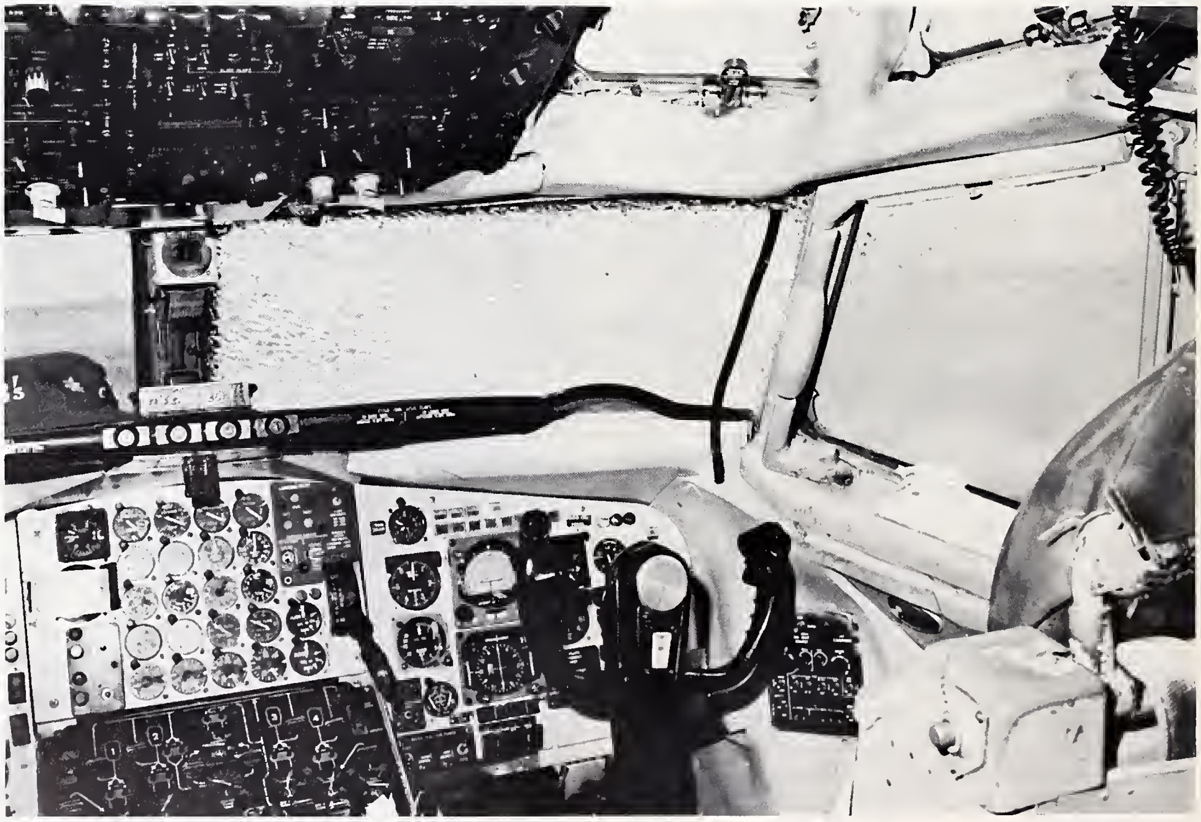


Bird Strike



Each day, SAC crews are faced with the hazards of bird strikes — especially during the spring and fall waterfowl migratory seasons. The photo indicates the bird strike results to the copilot's number one window on an RC-135A. The inner pane is broken and bird remains penetrated the cabin through the lower right-hand portion of the window.

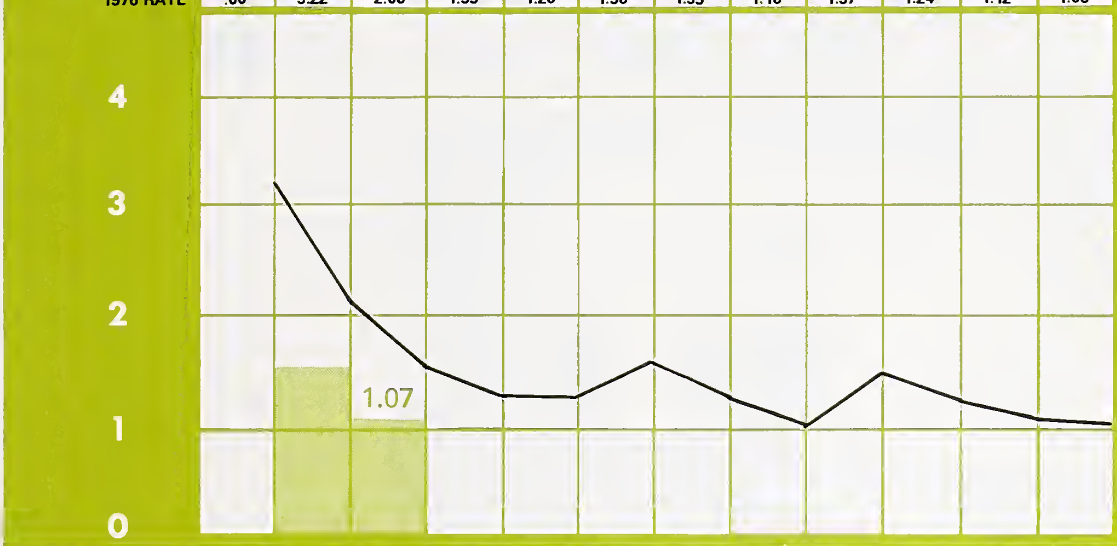
The aircraft was climbing through an overcast deck at about 1500 feet AGL and was pressurized. Bird type is unknown but suspected to be a duck. Glass slivers were found as far aft as the boom operator's forward position. Forward visibility from the copilot position was totally lost.



1977 Flying Safety Rate

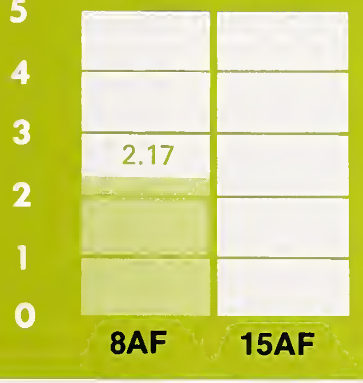
SAC MAJOR ACCIDENT RATE (PER 100,000 FLYING HRS)

1976 RATE	.00	3.22	2.06	1.55	1.26	1.56	1.35	1.16	1.37	1.24	1.12	1.03



ACCIDENTS	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
1976	0	2	0	0	0	1	0	0	1	0	0	0
1977	0	1	0	1								

1977 SUBORDINATE CMD RATES

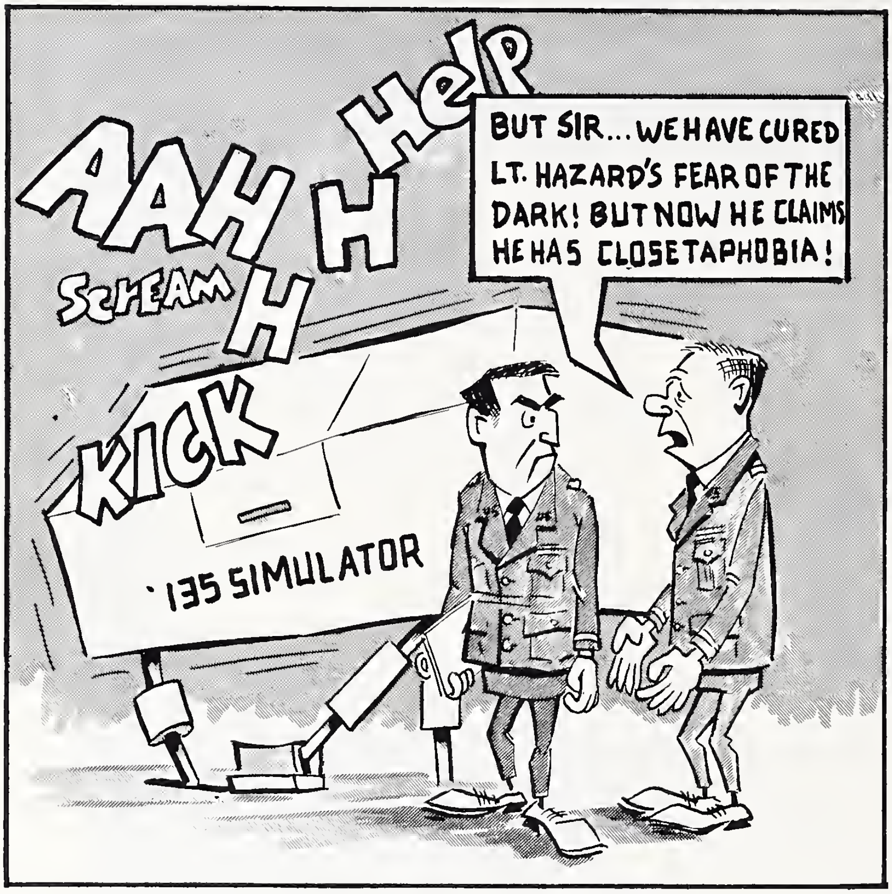


ACCIDENT STATUS

FB-111	FEB 77
B-52	APR 77

LEGEND ⌒ =1976 RATE

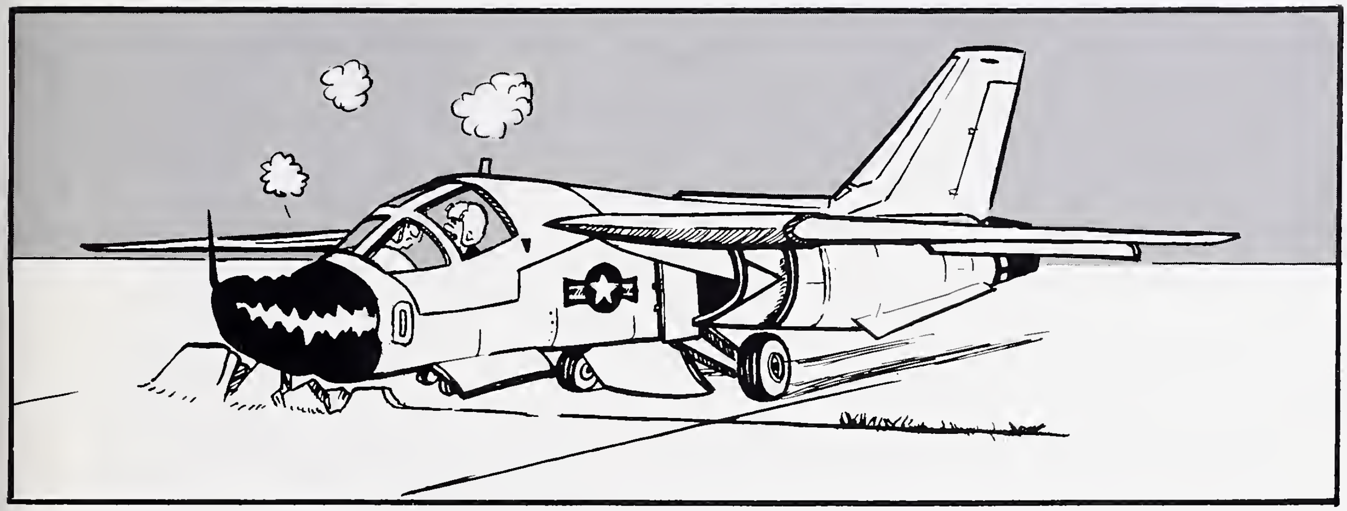
OPS HAZARDS


AAHHH
Help
SCREAM
KICK
BUT SIR...WE HAVE CURED LT. HAZARD'S FEAR OF THE DARK! BUT NOW HE CLAIMS HE HAS CLOSETAPHOBIA!
'135 SIMULATOR

FLASH BLINDNESS

The mission was scheduled as a night training sortie that included low level navigation, RBS, and practice ordnance deliveries. On initial takeoff the aircraft entered clouds at 800 feet and noted St. Elmos fire on the radome until exiting clouds at approximately 10,000 MSL. While cruising to the low level entry point numerous areas of heavy precipitation were noted on the aircraft radar. The initial portions of the low level route were clear, but the route was eventually aborted due to the bad weather. The crew then proceeded to the RBS site and was engaged in RBS activities when a recall was initiated due to deteriorating weather at home station. The crew elected to fly an enroute descent to home base to conserve fuel in the event they were diverted to an alternate base. During the descent numerous light precipitation areas were observed on the aircraft radar. The aircraft entered clouds at approximately 11,000 MSL and encountered some light rain. Passing 6,500 MSL in a wings level descent, lightning struck the left front of the aircraft. At the time of the strike the aircraft was in the clouds but was not encountering rain or any St. Elmos fire. The flash from the strike was so brilliant that both crewmembers were temporarily blinded. The right seater had his head lowered in the scope and thought at first they had struck a bird. Experiencing no wind blast, he raised his head and discovered he could not see. When he called the AC he received no answer. On the second call the AC indicated that he was blinded also. The WSO slowly began to regain peripheral sight and was able to confirm the aircraft was still in a wings level descent passing 5500 feet and that the engine instruments appeared normal. The time of aircrew incapacitation from the strike was approximately ten seconds. After the strike the aircrew noted the fuel totalizer and radar had ceased to function but all other engine and flight instruments appeared to be operating correctly. The aircrew elected to continue the enroute descent and fly the approach. The aircraft commander stated that throughout the approach he was bothered by the effects of the strike and had trouble rapidly focusing on instruments. He also felt slightly disoriented. After landing both crewmembers experienced headaches. Initial postflight investigation showed 12-13 burn spots in the left forward part of the fuselage and a large burn area on the outboard tip of the stabilator.

Have you even considered what you would do if both pilots suffered flash blindness? Could you find the switches you need? Have you even given or received a blindfold cockpit check? Knowing the location and proper position of switches without having to look for them could pay significant dividends in an emergency situation.



YOU DON'T SUPPOSE THE RUMORS ABOUT ADMIRAL BREAKABACK ARE TRUE?

A recent incident with a Navy aircraft bears a striking resemblance to a SAC FB-111 major accident.

The pilot commenced descent after receiving current weather of 300 feet and one-half mile visibility. During the approach he was advised that the weather had deteriorated to below minimums. He elected to continue the approach as he had sufficient fuel to proceed to his alternate. At 1500 feet he switched to GCA. At one mile he was advised that he was below glide slope but he continued the approach going well below glide slope. GCA instructed him to execute a missed approach if he did not have the runway in sight. He saw the high intensity lights, the green threshold lights and so advised GCA. About this time he realized how dangerously low he was and added power to go around. The aircraft touched down 473 feet short of the threshold on the centerline, collapsing the nose gear and sliding straight ahead coming to rest 320 feet down the runway.

TRICKY TRIM WHEEL

During practice air refueling the crew noticed that the aircraft was not trimming properly. Subsequent investigation revealed that the stabilizer trim wheel was binding after a few inches of travel in either direction. The crew contacted the command post for assistance, reduced gross weight, and conducted a controllability check. Extremely heavy control pressures were required due to the lack of trim capability. The crew achieved pitch control using a combination of elevator, airbrakes, and center-of-gravity manipulation and accomplished an uneventful landing.

Maintenance investigation revealed that the copilot's stabilizer trim indicator bracket was binding against the trim wheel. The bracket normally has adequate clearance, but in this case it had been slightly out of alignment so as to catch on the reinforcement spokes cast on the inner face of the trim wheel. This interference was evident from gouges on these spokes around the circumference of the wheel. In effect, the bent bracket was acting like a ratchet. At some time during air refueling the bracket finally became bent enough to catch firmly on one of the spokes, and the resulting binding distorted it even further. At that point, the bracket would catch and hold the copilot's trim wheel as the spokes came in contact with it. This gave the crew a small (three to four inches) range of trim movement, after which the trim would hang up. The crew, not knowing the cause of the problem, elected not to force the trim wheel. Review of the aircraft maintenance records revealed that the copilot's trim wheel was "canned" for use on another aircraft. The incident aircraft was in phase inspection at the time. Later, the trim wheel was replaced. There is no tech order requirement for an ops check other than to insure that the wheel has engaged the splines on the shaft. This was accomplished. Evidently someone working in the cockpit inadvertently bent the bracket during the time the trim wheel was removed. (During winter at that base, maintenance personnel routinely wear bulky mukluks.) The aircrew stated that the trim operated normally on preflight check, both manually and electrically. The damaged portion of the bracket is located near the floor. Thus, it could easily have been damaged without the responsible individual realizing it.

The cockpit of the B-52 is extremely crowded and extreme care must be taken when climbing in and out of the seats. There are numerous switches which can be operated by an inadvertent kick.

MAINTENANCE MAN. Technical Sergeant Victor D. Montoya, 43 Munitions Maintenance Squadron, Andersen AFB.

PROFESSIONAL PERFORMERS

Individuals selected for these pages as SAC's top professional performers of the month are chosen from nominations made by all SAC units. Selection is made only after all nominations have been carefully screened and those chosen meet the highest standards of excellence outlined in SACR 127-2.

PILOT OF THE MONTH. Capt Augustine R. Hoenninger, U-2 Aircraft Commander, 9 Strategic Reconnaissance Wing, Beale AFB.

TITAN Crew S-201, 341 SMW, McConnell AFB: MCCC Capt Michael H. Spiegelman, DMCCC 1Lt Ernest S. Moore, BMAT SSgt Robert E. Servant, MFT MSgt Donald D. Bartu.

MINUTEMAN Crew R-133, 341 SMW, Malmstrom AFB: MCCC 1Lt Michael E. Vrosh, and DMCCC 2Lt Thomas P. Coyne.

HALL OF FAME

TACTICAL FLYING

OVER TWENTY-ONE YEARS

170 AREFG, McGuire (NJANG)	NONE

OVER NINETEEN YEARS

171 AREFW, Greater Pittsburgh (PAANG)	Mar '58

OVER EIGHTEEN YEARS

157 AREFG, Pease (NHANG)	Jun '58

OVER SEVENTEEN YEARS

940 AREFG, Mather (USAFR)	May '59
916 AREFS, Travis	Sep '59
97 BMW, Blytheville	Mar '60

OVER SIXTEEN YEARS

19 BMW, Robins	Oct '60
151 AREFG, Salt Lake City (UTANG)	Feb '61
161 AREFG, Sky Harbor (AZANG)	Apr '61
126 AREFW, Chicago O'Hare (ILANG)	Apr '61

OVER FIFTEEN YEARS

134 AREFG, McGhee Tyson (TNANG)	Aug '61
11 AREFS, Altus	Feb '62

OVER FOURTEEN YEARS

301 AREFW, Rickenbacker	Jul '62
96 BMW, Dyess	Aug '62
449 BMW, Kincheloe	Aug '62

OVER TWELVE YEARS

160 AREFG, Rickenbacker (OHANG)	Dec '64

OVER ELEVEN YEARS

136 AREFW, Dallas NAS (TXANG)	Jun '65
320 BMW, Mather	Jul '65

OVER TEN YEARS

452 AREFW, March (USAFR)	Sep '66
92 BMW, Fairchild	Feb '67

OVER NINE YEARS

55 SRW, Offutt	Jul '67
2 BMW, Barksdale	Aug '67
319 BMW, Grand Forks	Dec '67
22 BMW, March	Feb '68

OVER EIGHT YEARS

128 AREFG, Gen Mitchell (WIANG)	Jan '69
5 BMW, Minot	Feb '69

OVER SEVEN YEARS

42 BMW, Loring	Sep '69
93 BMW, Castle	Oct '69
141 AREFW, Fairchild (WAANG)	Oct '69

OVER SIX YEARS

28 BMW, Ellsworth	May '70

OVER FIVE YEARS

7 BMW, Carswell	Mar '72
101 AREFW, Bangor (MEANG)	Mar '72

OVER FOUR YEARS

416 BMW, Griffiss	May '72
305 AREFW, Grissom	Aug '72
376 SW, Kadena	Nov '72

ICBM

OVER THIRTEEN YEARS

381 SMW, McConnell	Nov '63

OVER TWELVE YEARS

90 SMW, F E Warren	Jul '64
1 STRAD, Vandenberg	Sep '64

OVER ELEVEN YEARS

308 SMW, Little Rock	Aug '65

OVER SEVEN YEARS

341 SMW, Malmstrom	Apr '70

To gain listing in the Hall of Fame, a SAC or ARF unit must be mishap-free for 48 months.

SAC SAFETY SCREEN

6 SW, Eielson Crew R-07: P Capt James P Parker, CP 1Lt Stephen M Swearengin, NN Capt Vincent Rukstalis, NN capt Jon W Anderson

7 BMW, Carswell Crew E-72: P Capt Paul D Heiser, CP 1Lt Delewis O Porter, RN Capt Earl M Cornette, EWO 1Lt James W Logan Jr, G Sgt Aaron E Erickson

11 AREFS, Altus Crew R-112: P Capt Lawrence L Propp, CP Capt Gary D Blankenbiller, IN Capt Ralph D Oppy, BO Sgt George A Katzenberger

44 SMW, Ellsworth Crew E-157: MCCC Capt James L Perrine Jr, DMCCC 1Lt David T Lane II

22 BMW, March Crew E-18: P Capt Steven R Schmidt, CP Capt Hal R Dawson, RN Capt Jeffrey D Sutton, NN 1Lt Desmond C Devereux, EW Capt Joseph F Kettner, AG TSgt Tommy L Anderson

90 SMW, F E Warren Crew S-187: MCCC Capt Lloyd L Lacher, DMCCC 1Lt John W Weaver

100 AREFW, Beale Crew E-116: P Capt Charles G Goin, CP 1Lt Bruce A Taylor, NN Capt William E Stanley, BO Amn Gary V Swain

321 SMW, Grand Forks Crew E-160: MCCC Capt Gary N Pflepsen, DMCCC 2Lt Kevin N Gentry

351 SMW, Whiteman Crew S-058: MCCC Capt Jeffrey A Cameron, DMCCC 1Lt Ronald L Pardeck

390 SMW, Davis-Monthan Crew S-053: MCCC Capt Kenneth L Murphy, DMCCC 1Lt Michael A Kirtland, MSAT Sgt Roger D Allen, MFT SSgt John C Ellington

449 BMW, Kincheloe Crew R-109: P Capt Lewis J Smith III, CP Capt William J Heilman, N 1Lt Douglas M Cecil, BO Sgt Richard L Hackett

The SAC Safety Screen is an honor roll of SAC's most professional crews. To gain listing on the Screen, crew members must be nominated by their unit commanders and meet high selection criteria of experience in their aircraft or missile system *IAW SACR 127-2.*

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FLARE

U-2 PILOT OPPORTUNITIES

There is a continuing requirement for highly skilled pilots to perform strategic reconnaissance duty in the SAC U-2 program. The Air Force's single U-2 unit is based at Beale AFB and performs a variety of Air Force and other agency missions with a worldwide TDY commitment. Entry criteria and application procedures are fully covered in AFR 36-20, para 8-20. Basically, officers sought are captains with a minimum of 1500 hours total flying time (1000 hours jet) in two or more aircraft. Applicants must have a minimum of 18 months pilot in command experience and two years on current station at time of entry. Centerline thrust jet aircraft experience is highly desirable. Questions may be directed to the U-2 Manning Liaison Officer (Beale AFB, Autovon 368-2927/2156) or Hq SAC/DPROR (Autovon 271-5208/4298).